

REMARKS

Claims 1-3 and 6-13 are pending in the present application after this amendment cancels claims 4 and 5. Claims 1 and 11 have been amended to correct typographic errors, to clarify the subject matter of the claimed invention, and/or to include the features of the canceled claims. The amendments are supported throughout the specification and figures. No new matter is added by amendments and new claims, which find support throughout the specification and figures. In view of the amendments and the following remarks, favorable reconsideration of this application is respectfully requested.

Claims 1-4 and 6-13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,859,116 to Nishimura et al. (hereinafter referred to as Nishimura). The amendment to claim 1 to include the features of canceled claims 4 and 5 obviates this rejection, and these claims are therefore discussed in the context of the obviousness rejection of claim 5.

Claim 5 is rejected 35 U.S.C. § 103(a) as being unpatentable over Nishimura in view of U.S. Patent No. 5,585,687 to Wakabayashi et al. (hereinafter referred to as Wakabayashi).

Applicants respectfully traverse.

Claim 1 relates to a crystal unit that includes, *inter alia*, a crystal blank provided with a pair of excitation electrodes and a pair of extension electrodes extended from the excitation electrodes. The crystal blank of claim 1 includes a first principal surface and a second principal surface and an inclined surface formed at one end of the first principal surface. The first principal surface and the second principal surface are flat-shaped and parallel to each other. In claim 1, one of the excitation electrodes is arranged on the first principal surface and the other of the excitation electrodes is arranged on the second principal surface opposite the one of the excitation electrodes arranged on the first principal surface. Also in claim 1, *the excitation*

electrodes are parallel to each other. In amended claim 1, a further inclined surface is formed at a further end of the crystal blank opposite the end, and *the inclined surfaces are different from each other in size at the respective ends and the extension electrodes are extended toward the greater inclined surface.*

The excitation electrodes of Nishimura oppose each other via the crystal blank at the position of the inclined surface. However, the extension electrodes or electrode wires of a crystal unit should not affect the oscillation characteristics of the crystal unit. The extension electrodes of the present invention do not oppose each other via the crystal blank at the position of the inclined surface, and in this manner do not affect the oscillation characteristics. The Examiner asserts that it is well known in the art of piezoelectrics to use *parallel electrodes* located on opposite surfaces of a piezoelectric element to induce an electric field between the electrodes and/or create a vibration in the piezoelectric device transverse to the electrodes. (Office Action; page 3, lines 13-16). Applicants respectfully challenge the Examiner's assertion of Official Notice, especially in light of the argument presented in the previous amendment regarding the advantages of parallel excitation electrodes. In the present invention the excitation electrodes are disposed on the principal surfaces of the crystal blank at the position where the crystal blank has a uniform thickness. Therefore, the technical concept of the present invention is quite different from Nishimura and the present invention is not anticipated by, nor rendered obvious by, Nishimura and Wakabayashi. Neither of Nishimura nor Wakabayashi discloses parallel excitation electrodes, and therefore, for at least this reason, unamended claim 1 is allowable over the reference.

Additionally, in the interest of expediting prosecution, claim 1 has been amended to include the features of claims 4 and 5. The Examiner asserts that the motivation to modify

Nishimura is “to produce the desired vibration in the piezoelectric device.” (Office Action; page 3, lines 17-19). The Examiner provides no motivation at all for combining Nishimura and Wakabayashi (Office Action; section 3). However, this conclusory or non-existent reasoning is insufficient to support a claim of obviousness. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either *explicitly or implicitly in the references themselves or in the knowledge generally available* to one of ordinary skill in the art. (MPEP 2143.01, emphasis added). “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

The Federal Circuit addressed the standard for obviousness and the requirement of motivation in Teleflex, Inc. et al. v. KSR Int’l Co., (119 Fed. Appx. 282; 2005 U.S. App. LEXIS 176). The patent at issue in *Teleflex*, related to an electronic pedal position control and a pedal assembly. In *Teleflex*, the district court granted a motion for summary judgment based on invalidity due to obviousness. The Federal Circuit vacated the decision and remanded to the lower court for further proceedings on the issue of obviousness. The Federal Circuit stated that, in regard to obviousness, “a person of ordinary skill in the art must not only have had some motivation to combine the prior art teachings, *but some motivation to combine the prior art teachings in the particular manner claimed.*” (*Teleflex*, citing *In re Kotzab*; emphasis added). The Federal Circuit found that that there was no motivation to combine the Asano patent, which disclosed all of the limitations except the electronic control, and the Rixon patent, which disclosed an electronic control and an adjustable pedal assembly. As the court further stated:

[t]he district court correctly noted that the nature of the problem to be solved may, under appropriate circumstances, provide a suggestion or motivation to combine prior art references. However, the *test requires that the nature of the problem to be solved be such that it would have led a person of ordinary skill in the art to combine the prior art teachings in the particular manner claimed.*

(*Teleflex*, citing as background *Rouffet*, 149 F.3d at 1357; emphasis added).

It is respectfully submitted that the present rejection is similar to the rejection discussed in *Teleflex* in that there is no motivation provided in Nishimura to combine its teaching with Wakabayashi. Nishimura apparently discusses facilitating control of an oscillation frequency by arranging a pair of excitation electrodes on both surfaces of the crystal blank at which the inclined surfaces are formed so that both excitation electrodes oppose each other via the crystal blank with uneven thickness. There is no motivation to combine Nishimura with Wakabayashi in which excitation electrodes are disposed *in parallel* in both flat-shaped principal surfaces of a crystal unit. As the *Teleflex* court held, there must be *specific teaching* to motivate a person of ordinary skill in the art must to combine the prior art teachings *in the particular manner claimed*. Therefore, since there is no motivation to combine the references, the rejection is improper.

Additionally, it is respectfully submitted that some of the features of amended claim 1 are not disclosed in either Nishimura or Wakabayashi. For instance, in amended claim 1, the *inclined surfaces are different from each other in size at the respective ends and the extension electrodes are extended toward the greater inclined surface*. The Examiner asserts that these features are disclosed in Wakabayashi (Office Action; page 5, lines 6-8; citing Wakabayashi; col. 8, lines 41-45 and col. 9, lines 49-54). However, the cited sections do not disclose or suggest inclined surfaces of different sizes, nor more particularly, they do not disclose or suggest that

extension electrodes extend toward the greater inclined surface. In particular, the first cited section refers to figures 7 and 8 and indicates that the oscillating reed may have a *trapezoidal* side view. However, there is no disclosure or suggestion of *an asymmetrical side view*. The Examiner asserts that differences in dimensions do not affect patentability. However, the present invention has the advantage of providing *a smaller footprint* and therefore *reducing size*. Therefore, since neither reference discloses or suggests inclined surfaces different from each other in size at the respective ends, claim 1 is allowable over the references.

Similarly, regarding the feature of the present invention of the extension electrodes being extended toward the *greater* inclined surface, it is respectfully submitted that, since none of the references discloses differently sized inclined surface, none of the references discloses, or even suggests, *extension electrodes extending toward the greater inclined surface*. Although inclined surfaces are formed at both ends in longitudinal direction of the crystal blank having a substantially rectangular shape, in amended claim 1, the inclined surfaces are different from each other in size at the respective ends and the extension electrodes are extended toward the greater inclined surface. The crystal units shown in figure 8, and recited in claim 1, can be formed with smaller planar sizes. Therefore, since none of the references disclose or suggest extension electrodes being extended toward the greater inclined surface, the combination of the references does not render claim 1 unpatentable.

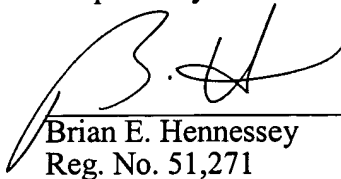
Claims 2, 3, and 7-13 depend from claim 1 and are therefore allowable for at least the same reasons as claim 1 is allowable.

CONCLUSION

In view of the remarks set forth above, this application is believed to be in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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